L'exemplaire filmé fut reproduit grâce à la générosité de:

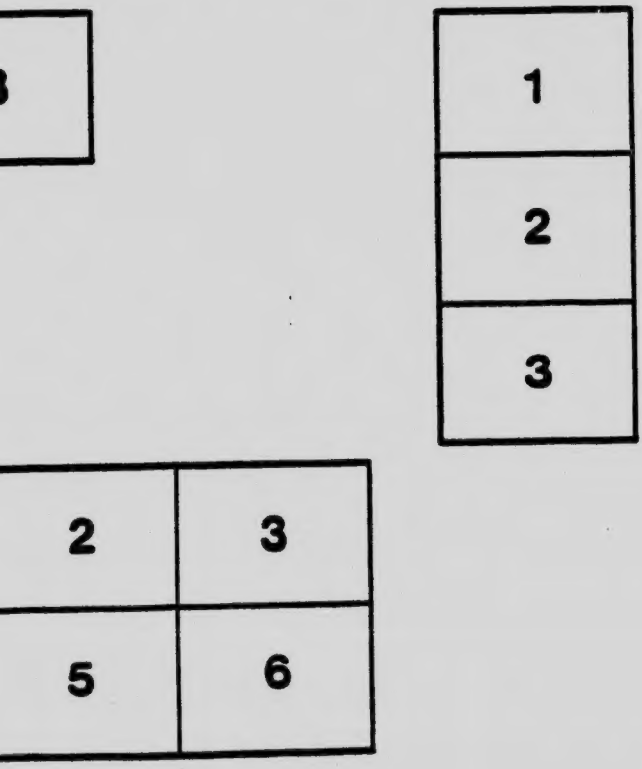
Bibliothèque nationale du Canada

Les images suivantes ont été reproduites avec le plus grand soin, compte tenu de la condition et de la netteté de l'exemplaire filmé, et en conformité avec les conditions du contrat de filmage.

Les exemplaires originaux dont la couverture en papier est imprimée sont filmés en commençant par le premier plat et en terminant soit par la dernière page qui comporte une empreinte d'impression ou d'illustration, soit par le second plat, selon le cas. Tous les autres exemplaires originaux sont filmés en commençant par la première page qui comporte une empreinte d'impression ou d'illustration et en terminant par la dernière page qui comporte une telle empreinte.

Un des symboles suivants apparaîtra sur la dernière image de chaque microfiche, selon le cas: le symbole ⟶ signifie "A SUIVRE", le symbole ▽ signifie "FIN".

Les cartes, planches, tableaux, etc., peuvent être filmés à des taux de réduction différents. Lorsque le document est trop grand pour être reproduit en un seul cliché, il est filmé à partir de l'angle supérieur gauche, de gauche à droite, et de haut en bas, en prenant le nombre d'images nécessaire. Les diagrammes suivants illustrent la méthode.



CA. M 6761
C2

CANADA
DEPARTMENT OF MINES
MINES BRANCH
HON. W. TEMPLEMAN, MINISTER; A. P. LOW, LL.D., DEPUTY MINISTER;
EUGENE HAANEL, PH.D., DIRECTOR.

THE PRODUCTION OF CHROMITE IN CANADA

During the Calendar Years 1907-8

BY

JOHN McLEISH, B.A.
Chief of the Division of Mineral Resources and Statistics

LIBRARY

OTTAWA
GOVERNMENT PRINTING BUREAU
1909

5814—1 No. 43.

MINES BRANCH
LIBRARY

CHROMITE

With regard to the output of chromite in Canada during the past four years, the production has shown comparatively little variation.

The shipments in 1907 were 7,196 tons valued at $72,901, made up of 3,545 tons classed as high grade valued at $41,931 (chiefly concentrates), and 3,651 tons of low grade, valued at $30,970.

In 1908 the total shipments were returned as 7,225 tons valued at $82,008, made up of 3,472 tons of concentrates valued at $45,300, and 3,753 tons of crude ore, valued at $36,708.

In neither of these years was the output as large as in 1906, when the shipments were given as 9,035 tons valued at $91,859.

Prices realized in 1908 were perhaps slightly better than in 1907.

Statistics of production since 1886 are shown in Table 1 following, the total during the last five years being divided into high and low grade. Material classed as high grade includes both ore and concentrates ranging from 48 per cent to 50 per cent Cr_2O_3 and higher, while the low grade is composed chiefly of crude ore.

CHROMITE.—TABLE 1.

Annual Production in Canada, 1886-1908.

Calendar Year.	High Grade			Low Grade.			Totals.		
	Short Tons.	Value.	Average Prices.	Short Tons.	Value.	Average Prices.	Short Tons.	Value.	Average Prices.
		$	$ c.		$	$ c.		$	$ c.
1886	.....	.....	.....	.....	.....	.....	60	945	15·75
1887	.....	.....	.....	.....	.....	.....	38	570	15·00
1886 to 1893	.....	.....	.....	.....	.....	.....	.....	No Output	.....
1894	.....	.....	.....	.....	.....	.....	1,000	20,000	20·00
1895	.....	.....	.....	.....	.....	.....	3,177	41,300	13·00
1896	.....	.....	.....	.....	.....	.....	2,342	27,904	11·53
1897	.....	.....	.....	.....	.....	.....	2,637	32,474	12·31
1898	.....	.....	.....	.....	.....	.....	2,021	24,252	12·00
1899	.....	.....	.....	.....	.....	.....	2,010	21,842	10·86
1900	.....	.....	.....	.....	.....	.....	2,335	27,000	11·56
1901	.....	.....	.....	.....	.....	.....	1,274	16,744	13·14
1902	.....	.....	.....	.....	.....	.....	900	13,000	14·44
1903	2,842	44,280	15.58	667	6,849	10.27	3,509	51,129	14·57
1904	4,650	52,976	16.08	1,424	13,170	9 25	6,074	67,146	11·05
1905	.....	.....	.....	8,575	93,301	10.88	8,575	93,301	10·88
1906	4,975	57,484	11.55	4,060	34,375	8.47	9,033	91,859	10·17
1907	3,545	41,931	11.83	3,651	30,970	8.48	7,196	72,901	10·13
1908	3,472	45,300	13.05	3,753	36,708	9.78	7,225	82,008	11·35

The chromite finds its chief market in the United States, although a few carloads are shipped annually to Canadian points.

The exports of chromite from Canada, as compiled from the monthly reports of Trade and Navigation, are given in Table 2. It must be pointed out, however, that these figures show some peculiar discrepancies. In the first place the exports to Great Britain are evidently not chromite, but may be ferro-chrome, while in the second place the quantities given as exported to the United States are much less than is stated by the shippers to have found a market in that country.

CHROMITE.—TABLE 2.

Exports during the calendar years 1895-1908.

Calendar Year.	To Great Britain.		To United States.		To Other Countries.		Total Exports.	
	Tons.	Value.	Tons.	Value.	Tons.	Value.	Tons.	Value.
		$		$		$		$
1895	.....	.....	.....	.....	.....	.....	2,908	42,236
1896	.....	.....	.....	.....	.....	.....	2,468	31,411
1897	.....	.....	.....	.....	.....	.....	2,106	26,254
1898	.....	.....	.....	.....	.....	.....	1,663	20,783
1899	.....	.....	.....	.....	.....	.....	1,509	19,876
1900	.....	.....	.....	.....	.....	.....	368	8,259
1901	.....	.....	.....	.....	.....	.....	2,259	25,444
1902	.....	.....	.....	.....	.....	.....	740	7,535
1903	62	4,650	914	15,319	37	555	1,013	20,524
1904	192	11,395	2,859	45,649	287	3,292	3,338	60,336
1905	153	11,030	1,966	23,362	.....	.....	2,119	34,392
1906	.....	.....	891	10,188	.....	.....	891	10,188
1907	108	10,400	784	9,400	.....	.....	892	19,800
1908	.....	.....	4,571	56,864	.....	.....	4,571	56,864

It will be observed that the exports to Great Britain average in value from $60 to $96 per ton, while those to the United States range between $11 and $16 per ton, and it may be inferred that the exports to Great Britain possibly represent ferro-chrome which may have been entered with the chromite by the Customs officers in the absence of a more definite classification.

In the following table a comparison is given of the trade returns in chromite between Canada and the United States, as published by the Canadian Customs Department and the United States Department of Commerce respectively, in order to further illustrate the discrepancies referred to in Table 2.

Twelve months ending June 30.	Imports of Chromite into the United States from Canada[1].		Exports of Chromite from Canada to the United States[2].	
—	Short Tons.	Value.	Short Tons.	Value.
1904	2,790	$36,322	2,032	$40,296
1905	6,489	70,934	2,635	31,007
1906	9,951	107,580	1,803	21,293
1907	6,179	66,115	612	7,606
1908	6,505	69,009	2,654	32,940

[1] Monthly Reports, Trade and Navigation, Ottawa.
[2] The Foreign Commerce and Navigation of the United States, Washington, long ton in original changed to short ton.

We are forced to the conclusion that a larger quantity of chromite, particularly during the years 1904 to 1908, has been exported to the United States than is shown by the Canadian trade returns.

The chromite is mined in the Eastern townships, Province of Quebec, chiefly in the township of Coleraine at Little Lake St. Francis and Black Lake, the operating companies being the Dominion Chrome Company and the Black Lake Chrome and Asbestos Company, both operating under one management. A couple of car loads were also shipped by the D'Israeli Chrome Mines, Ltd., from the property of Mr. J. O. Brousseau, in Garthby township.

Other mines in the district, owned by the American Chrome Company and the Canadian Chrome Company, were idle during the year.

Chrome iron ore is chiefly used for the manufacture of ferro-chrome alloys, and chromium salts for pigments, and is also used for linings in steel and copper furnaces. Ferro-chrome is manufactured at Buckingham, Que., by the Electric Reduction Company, from Eastern Township ores, and shipments of these ores have also been made to the steel furnaces at Sydney and Sault Ste. Marie.

Prices in New York in 1907 and 1908 were practically uniform, ranging from $17 to $20 per long ton for 50 per cent ore.

As an illustration of the possible market in the United States for Canadian chrome iron ore, the following table shows the imports into that country during the year ending June 30, 1908.

CHROME IRON ORE.—TABLE 3.

Imports into the United States, year ending June 30, 1908, in tons of 2,240 lbs.*

Imports from	Long Tons.	Value.	Average Value per Ton.
Belgium	197	$ 2,492	$12.65
France	468	7,776	16.39
Germany	.....	20	.....
Greece	9,921	136,996	13.81
United Kingdom	4,336	57,719	13.31
Canada	5,808	69,000	11.88
[illegible]	35	357	10.20
[illegible] in Asia	439	5,312	12.10
[illegible] Oceania	20,458	221,460	10.82
[illegible]uguese Africa	2,200	32,600	14.82
Totals	43,861	$533,600	$12.17

* The Foreign Commerce and Navigation of the United States, 1908.

THE WORLD'S PRODUCTION.

The world's production of chromite in 1907 was probably between 90,000 and 100,000 metric tons as a minimum. Turkey has been a large producer of this mineral, but only incomplete records of exports are available. The following table contains a summary of available records of chromite supplies from 1903 to 1908.

CHROMITE.—TABLE 4.

World's Production of Chromite in metric tons (2,204·6 lbs.).

Locality.	1903	1904	1905	1906	1907	1908
Australia (a)	1,[illegible]	400	[illegible]	18	[illegible]	.....
Bosnia and Herzegovina (a)	147	276	180	310	[illegible]	*
Canada (b)	3,181	5,810	7,779	8,196	[illegible]	6,554
Greece (a)	9,478	6,[illegible]	8,[illegible]	11,[illegible]	11,[illegible]	*
India (a)	.....	.....	2,751	4,445	7,[illegible]	*
New Caledonia (Production	.....	(a) 47,947 (a)	75,[illegible] (b)	84,261 (b)	[illegible]	*
" (Exports	(b) 21,497	(c) 42,437 (b)	51,374 (a)	57,[illegible] (c)	31,[illegible] (c)	45,[illegible]
Rhodesia (a)	.....	.....	Nil.	[illegible]	7,272 (c)	12,118
Russia (a)	16,431	26,575	27,047	16,976	*	*
Norway (a)	Nil.	154	Nil.	Nil.	.....	*
United States (f)	189	191	[illegible]	109	255 (e)	294
Turkey (g)	No complete statistics available.					

* Statistics not yet available.

(a) Home Office, London.
(b) L'Industrie Minérale, Paris.
(c) Mineral Industry, New York, 1908.
(d) Department of Mines, Ottawa.
(e) Rhodesia "Chamber of Mines".
(f) Geological Survey, United States.

(g) Turkey is one of the most important producers of chromite, the ore being found in many parts of both European and Asiatic Turkey. Unfortunately no complete records of production are available. According to statistics collected and published by the Home Office, the exports from several ports during the years 1903 to 1907 were as follows, in metric tons:—

—	1903	1904	1905	1906	1907
Salonica	9,000	8,000	5,700	5,600	4,900
Kossova	.....	3,100	3,000	4,100	2,800
Dorendgo and Marmora ports	12,000 to 15,000	12,000 to 15,000	12,000 to 15,000	12,000	12,000 to 14,000
Smyrna	2,000	888	.....	1,000	.....
Adana	.....	To value of £500	£2,[illegible]	.....	£1,000
Adalia	.....	.....	.....	.....	700

Imports of chrome iron ore into the United States from Turkey, during the fiscal years from 1903 to 1907 inclusive, aggregated 28,482 long tons, while the imports into Great Britain from Turkey during the six years from 1903 to 1907 inclusive, were 91,800 long tons.

00 35950